

ONTARIO FISH AND WILDLIFE REVIEW

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W. Q. MACNEE, DEPUTY MINISTER

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THE COVER

The sort of roadside you may expect to hear more about—a site chosen for selective shrub management in Haldimand Township, Northumberland County, as viewed by Author Creighton who offers further views and comments in this issue. On the back cover, to support Author Timmermann's exposition of moose antlers, George Whitfield's 1953 photo shows Alex Rettie assisting Sonny Nelson to display his 70-inch trophy.

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Auguries of Innocence

Our ideas of sportsmanship and conservation are generally not expressed very memorably—so much the worse for us. Recitations of facts have the inspiration of a ledger, and our earnest pleas and prayers become didactic and exegetic. The best sermon possible would be one word or phrase that needs no explanation and stimulates the mind of the hearer to arrive at truth unassisted.

These thoughts came to me on an occasion some time ago when I realized that some of the well-meaning people who are against all hunting thought that some of the couplets (“Auguries”) of the mystic poet, William Blake, struck a telling blow on their side. I was intrigued by the argument but could see right away that there is nothing in Blake’s “Auguries” that could disturb the peace of mind of any hunter. The first couplet goes:

“Robin Redbreast in a cage
Sets all Heaven in a rage.”

Any of us may have felt the same way, possibly for the same reason. There is actually only one on hunting:

“Each outcry from the hunted hare
A fibre from the brain does tear.”

The interesting fact is that while a trapped hare, or a hare in the clutches of an owl, cries bloody murder, a hunted hare does not cry at all.

To write a high-powered mystical couplet, all you have to do is to take some high-powered words and couple them with some idea that tickles your fancy. For example, Blake wrote:

“The lamb misused breeds public strife
Yet still forgives the butcher’s knife.”

All I can see is that he didn’t like the idea of lambs being abused, though who goes about misusing lambs is still obscure, and at the same time he approved of lamb chops.

It is easy to write a high-powered couplet. It is fun, too. The classical writer, Publilius Syrus, set the style a long time ago, and many have indulged. Suppose I say:

“Apple pie is such a treat
The powers of Hell admit defeat.”

So what?

Yet the idea persists: why not try to put thoughts on game management and hunting ethics into these nutshells? Some time ago I sat down and wrote a few. I have never been able to write any since, but perhaps others can. On rereading, I don’t think much of them, but even

some of Blake's go a little sour on repetition. Here they are. I don't know whether to call them, "More Auguries, Less Innocence" or "More Innocence, Less Augury". I shall not offer prizes for better because of the certainty of getting them.

- (1) Fowl and Fish by myriads told
Keep mankind from growing old.
- (2) He who hunts to serve his greed
Gets no blessing from his deed.
- (3) The hound that cries the truest line
Keeps his master in the prime.
- (4) Look ye who hunt the noble stag
Feed the poor and do not brag.
- (5) The starv'd deer staggering in the snow
Should have heard the twang of bow.
- (6) Who loves the soaring hawk to see
Let him often hunt with me.
- (7) Hare and hound the Maker saw
For each other to be Law.
- (8) The glade wherein the thrush does sing
Must not be lost for anything.
- (9) Who makes any place less pretty
Should be buried in a city.
- (10) Land for God's creatures made less fit
Tears a page from Holy Writ.
- (11) Beast and fowl are made to die;
So are you and so am I.

C. H. D. Clarke.

(Editorial Note.—Dr. Clarke was Chief of Fish and Wildlife Branch, Department of Lands and Forests, from 1960 to 1971.

WHERE HAVE ALL THE ROADSIDE WILDFLOWERS GONE?

by W. A. Creighton
Wildlife Biologist, Wildlife Branch
(Photos by the Author)

Where along Ontario roadsides can you go to view native shrubs in any abundance during the flowering stage in the spring or foliage colour changes in the fall. Lately, have you heard a brown thrasher or catbird call from a roadside thicket of nannyberry or gray dogwood? How long has it been since you took a walk or had a picnic with your family along a quiet country road that was edged with shrubs harbouring abundant wildlife? Where have all the roadside wildflowers gone?

Is your bird list somewhat low in numbers this year—think what it could be if the hedgerow habitat were present! How about all that home-brewed elderberry wine you are missing because these berry-laden shrubs are not abundant along roadsides. Consider the raspberries or blackberries you might have picked?

It is difficult to find a shrubby hedgerow of any length these days along roadsides, isn't it?

Our country roadside can contribute numerous aesthetic benefits such as wildlife for viewing and hearing, more fruit to pick and flowers to enjoy, and many miles of pleasant viewing which generates peace of mind. Unfortunately, as a general rule, they are ignored by those who design, construct and maintain roadways and telephone, telegraph and transmission lines.

Selective shrub management can provide many of the aesthetic and wildlife benefits along roadsides as well as reducing the costly spraying and re-spraying programs otherwise needed. This type of plant community

management consists of simply "weeding out" the tall trees and shrubs, and keeping the low-growing, self-maintaining shrubs, wildflowers and other desirable plants. Shrubby hedgerows, mixed with herbs, ferns and grasses, can be obtained only by precise selective cutting and spraying. Without the competition from taller vegetation, such desirable shrubs as dogwoods, hazels, sumacs, viburnums, roses, elderberries, and grapes thrive and take over.

In most instances, it has been found that shrubs tend to resist invasion by tree seedlings, whereas grasslands are relatively open to invasion by pines, ashes, maples, elms, and birches. As an example, in southwestern Connecticut, a plant community of *Viburnum lentago* (nannyberry) has occupied a well-drained old pasture for 25 years without being "invaded" by trees. The unnecessary removal of shrubs such as these, which is now in progress over thousands of acres along our public utilities and roadside right-of-ways, is botanically and financially unsound, since the shrubs will take over the major job of future maintenance if given the opportunity.

Here are some of the reasons why selective management of shrubs along roadsides is desirable.

GAME POPULATIONS

Without good habitat, wildlife populations are scarce. This situation was documented in Wisconsin where studies showed a direct correlation between the downward trend of the quail population and loss of



Beauty along the roadside—the flower and leaves of common elderberry.

hedgerows, the majority of which were located on roadsides. From 1931 to 1950, the quail population in the study area averaged 23 birds per mile of hedgerow cover, during which time the miles of hedgerow cover exceeded one mile per 450 acres. When the ratio of miles of hedgerow cover to acres of study area declined to 1:650, the quail population disappeared. The value of hedgerows to quail must be important as part of their habitat requirements.

The cottontail rabbit, among all upland game species, receives the greatest value from brushy hedgerows. Hedgerows provide nesting and escape cover for cottontails. Hungarian partridge and pheasants use shrubby field borders for roosting and nesting when they are available.

SONG BIRDS

In Ohio, Dambach (1948) discovered in his studies of field border management that breeding bird populations in shrub field borders ranged from 25.0 to 33.3 pairs in compared with only 0.4 to 6.9 pairs in

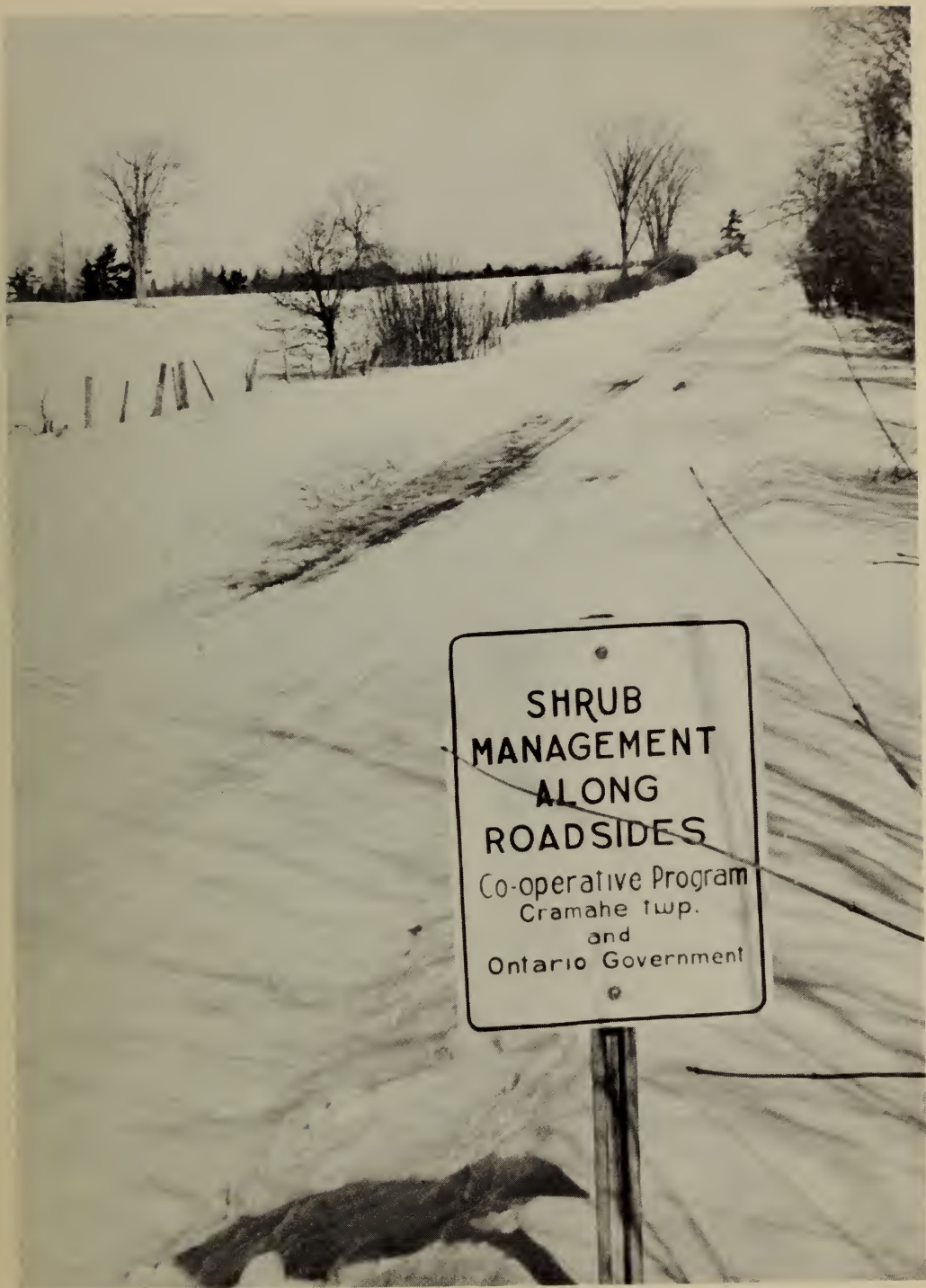
bluegrass borders devoid of shrubs. The great number of song birds that occupy hedgerows have two recognized values—the aesthetic and the economic. The aesthetic value received from hearing and seeing song birds is unquestionable. Although apparent, the economic value of song birds in controlling insects remains to be measured.

SMALL MAMMALS

Generally, the species that occupy hedgerows, such as the white-footed mouse and short-tailed shrew, are beneficial. In contrast, grassy field borders provide habitat for the destructive field mice. Linduska (1950) and others report that grassland field borders support more injurious small mammals than hedgerows.

INSECTS

Generally, hedgerows adjacent to grain and forage crops contain more beneficial insects than do field borders composed of grassy and broad-leaved species. Hedgerows composed of a variety of shrubs present an



A sign of the times in Northumberland County. Note shrub thickets on left side of road, rear, where trees have been removed (No work yet on right side).



Virginia creeper, a vine that crimson roadsides in the fall.

almost constant source of flowering plants required by all-important pollinating insects. While sufficient information on the precise relationship of shrubby hedgerows to insects is lacking, the important point is that the available knowledge shows that the relationship can be at times very beneficial to agricultural and horticultural crops.

WEEDS

Noxious weeds can be controlled by spot spraying prior to selective shrub management, using an approved herbicide. Once shrubs have obtained site dominance, they tend to suppress most vegetation beneath their canopy.

AESTHETICS

How do you measure the value to society of a mile of shrubby hedgerow in full bloom

with its living complement of mammals, birds, and insects? The showy white blooms of gray dogwood, nannyberry and elderberry in June, with foliage colour changes in fall, must inspire warm feelings in people observing this cycle of nature.

WHAT IS A ROADSIDE?

Perhaps it would be useful to define what is meant by a roadside. Any one roadside consists of several parts, involving a shoulder adjacent to the pavement, a ditch, then generally a mowed strip, and then an unmowed strip. It is only this unmowed strip that is of concern in the selective shrub management program—not the other components of the right-of-way.

It is necessary on many stretches of roadside to remove tall trees and tall-growing shrubs that interfere with communication lines or with road-clearing operations during



A nannyberry thicket provides food and shelter for wildlife, summer and winter.



the winter. This approach, selective management of shrubs along roadsides, does not have application to every last mile of roadside along township or county roads in Ontario, but there certainly are many important locations where it could be developed.

OLD AND NEW CONTROLS

In removing vegetation from the right-of-way it is not necessary to remove *all* woody vegetation. The very plants capable of reducing maintenance costs in future years along public right-of-ways are killed or seriously damaged by conventional methods of spraying. In fact, in many parts of the North American continent, the grassy right-of-way is an invitation to costly re-spraying.

It is not a new program by any means and has been tested in the northeast United States for the past two decades and more recently in the State of Wisconsin. Egler, (1952) states this selective shrub management program is predicated on the botanical fact that in forest regions different non-forest vegetation types become invaded by specific kinds of trees at different rates.

In the early days, the control of vegetation on the right-of-ways was accomplished by means of the axe and hard physical labour. Hand-cutting of unwanted trees was only a type of "shaving" which had no effect on the root systems. Regrowth followed, and from the standpoint of vegetation development, it was only a temporary set-back to the first forest stage.

Recently, a revolution has taken place in brush control with herbicides replacing hand

cutting. This controls vegetation by destroying it. Blanket or broadcast spraying kills the roots of all woody plants and thereby throws plant succession back to the grass stage. Thereafter, the control of invading trees results in costly maintenance.

SELECTIVE SPRAYING

Selective spraying involves the use of knapsack sprayers with high concentrations of 2,4,5-T in oil. Workers must know their plants in the dormant season, and because of regional differences in vegetation, each area must be specially planned botanically.

Although on first thought, one might assume that this system would be prohibitively expensive in terms of high-quality labour and an enormous number of man-hours, Egler (1953) has shown it to be on a competitive basis with the blanket-spraying method.

A beginning has been made to manage Ontario road right-of-ways in shrub cover for multiple uses. Experimental studies are being conducted in Northumberland County, and from these studies it is expected that a well planned program of selective roadside shrub management will evolve. The areas where management is carried out will hopefully prove, to both economy-minded road managers and interested outdoors people, that by applying the principles of selective shrub management it will be possible to have our cake and eat it too.

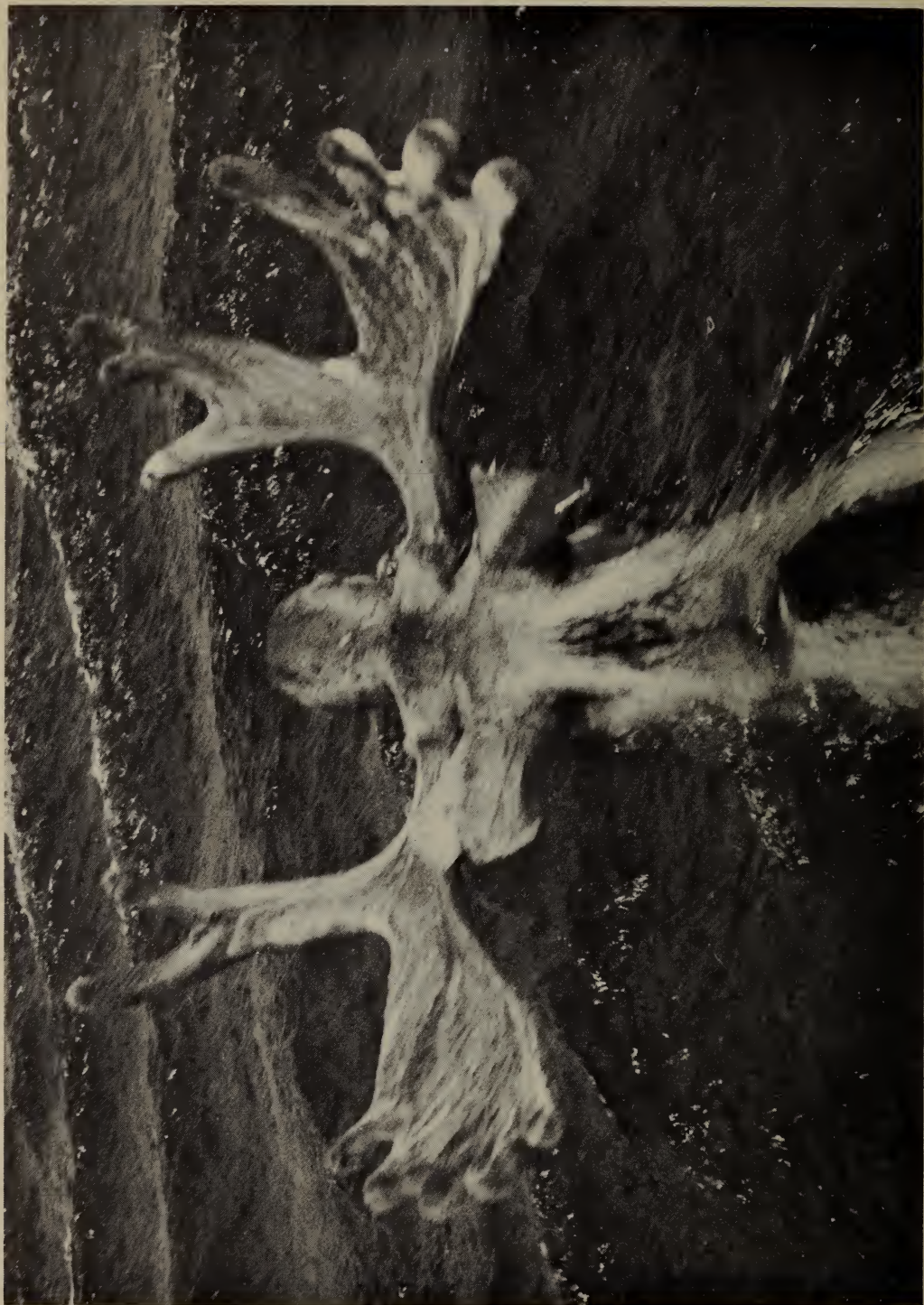
Right-of-ways will be cheap to maintain, and the shrubs and other vegetation will provide desirable habitats for game and non-game animals and attractive plant forms.

REFERENCES

- Dambach, C. A. 1945. Some biologic and economic aspects of field management. Trans. 10th N. Am. W. Conf. pp. 169-183.
- Egler, F. E. 1952. Roadside brush control. An application of Plant-Community management. 28th National Shade Tree Conference. pp. 59-70.
- Egler, F. E. 1953. Our disregarded right-of-ways—Ten million unused wildlife acres. Trans. 18th N. Am. W. Conf. pp. 147-158.
- Linduska, J. P. 1950. Ecology and land-use relationships of small mammals on a Michigan farm. Game Division, Mich. Dept. of Conservation, 144p.



The flowering chokecherry beautifies roadsides in spring. Photo by R. Sheehan.



Swimming moose with exceptionally large antlers still in velvet condition, Black Bay Peninsula, Thunder Bay Forest District, July, 1969.

THE ANTLERS OF THE MOOSE development related to age

by H. R. Timmermann

Biologist, Thunder Bay Forest District

(Photos by the Author)

The antlers of a prime bull moose impart a sense of majesty and strength. Fully developed antlers are highly prized by sportsmen, and there are some who only hunt moose to bag an animal with a trophy set of antlers. All sizes and shapes of antlers may be seen attached to barns, garages and summer cottages, mounted over fireplaces, and hanging in rec rooms, motels and tourist lodges. As a matter of fact, the Ontario coat of arms would be much less impressive without these ornaments.

Unlike horns which grow continually throughout the life of the animal, antlers are deciduous appendages which are shed annually like the leaves of a tree. When fully formed, they are inert bone-like structures, frequently displaying various forms of branching. True antlers are found today only in the deer family, the Cervidae—moose, caribou, elk and deer.

The moose, the largest living member of the deer family, bears the largest set of antlers which are usually paired structures and shaped like the palm of the hand with extended fingers. After a moose is one year of age and until it reaches its prime, each new crop of antlers becomes larger and more elaborate, adding branches and "points" that give an indication of the animal's age and vigour.

North American moose have larger antlers than their Old World relatives. World-record antlers consistently come from Alaska where spreads in excess of 80 inches (or nearly seven feet) have been documented.

In Ontario, the largest moose antlers

registered with the Boone and Crockett club to 1964 were taken in 1918 in Nipissing District near Round Lake. This specimen measured 70.5 inches at its greatest spread; it had 23 points and a beam circumference of 8.1 inches; and it ranked 14th in the Canada Moose category at that time.

In the club's fourteenth big game competition, covering three years, 1968 to 1970, the largest Canadian moose was shot by Dr. Jerry R. Brocksmith near Powell Lake in Thunder Bay Forest District in the fall of 1969. This trophy measured 61-7/8" at its greatest spread, and it had 22 points. The right palm was 46" x 14-4/8"; the left palm was 42" x 18-7/8".

Among North American cervids, with the exception of the caribou, antlers are found only on the male. On rare occasions, antlers (which usually do not shed their velvet) have been found on female moose, deer and elk. In female caribou, normal antlers are common, with over 70 per cent of the cows in some populations being antlered.

In late April or early May, antlers begin to grow at defined points, called pedicles, found on the outer face of the frontal bone. Here, the tissue, commonly referred to as "velvet", starts to develop. The velvet is a furry skin which covers the entire surface of the growing antler. Beneath this skin is a rich supply of nerves and blood which serve the developing, soft bone-like material.

While growing, antlers are tender and fragile and sensitive to the touch; they may bleed when injured and may cause the animal considerable pain if damaged. Mis-

shapen or unusually shaped antlers may result from an injury which distorts the symmetry and arrangement of the bone-forming cells while in the velvet stage.

By the beginning of September, antlers have grown to full size. The bone near the base becomes denser, eventually cutting off the blood supply from the skull. At this stage, antlers become hard or fully ossified; the velvet begins to degenerate and dry up; and the bare tines, or points of bones, become exposed. The velvet is removed by rubbing the antlers on shrubs and trees, which brings them in contact with resins, gums and dirt. This continual rubbing, combined with the dried blood of recently matured antlers, produces the typical brown colour that hunters are familiar with in early October.

The only time that the antlers are actually used is in the annual rut or mating season which begins in the second or third week in September; they are employed only to intimidate a rival to gain possession of a chosen cow. Usually, the antler display of a larger bull is sufficient to frighten away a weaker animal. Occasionally, two equally impressive bulls come together, and no intimidation occurs. This commonly leads to a head-on fight and sometimes ends in the antlers being locked together so tightly that they cannot be pried apart.

In Ontario, antlers are shed at any time between mid-November and mid-March. Generally, the older the bull, the sooner he sheds his antlers. More than one surprised hunter has shot a "cow" moose in late November or early December only to find that it was an old male that had recently lost his antlers. By March, the only moose still bearing antlers are males approaching their second birthday.

During a recent five-year study of the early-season moose harvest in the Black Sturgeon area of Thunder Bay Forest District, a large sample of moose antlers was examined. In this study to determine the relation between antler development and

age, three characteristics were recorded—the maximum or greatest spread, the total number of points over one inch long, and the circumference of the beam.

A progressive increase in all three characteristics took place from the age of 1½ to 6½ years. The greatest average maximum spread (52.1") occurred at 11½ years of age; the greatest average number of points (19.8) occurred at 10½ years; and the largest average beam circumference (8.4") occurred at 11½ years. Animals older than 11½ years showed a marked reduction in antler development.

A further analysis of 17 antlers from outside the study area, having a measured maximum spread of between 54.0 and 63.5 inches, revealed that twelve, or 70 per cent, came from the age group, 8½ to 11½ years. In 1955, Dr. Alex Cringan concluded that the largest and finest Ontario antlers came from moose judged to be between 8½ and 10½ years old; the largest specimen (70-inch spread) came from near Lake Nipigon and belonged to this age group.

A great deal of variation occurs in antler shape and size for each age classification. No two sets of antlers are ever exactly alike. Their development undoubtedly depends heavily on hereditary characteristics and on the quality of the range.

Two distinct types of moose antlers are recognized. These are the "palmata" or "shovel-horn" type, having broad palms, and the "cervina" or "pole-horn" type, having long tines or "spikes".

Most antlers examined exhibited varying degrees of the palmata type. "Double-shovel" antlers, with upsweeping shovels extending upwards and backwards, as well as a smaller brow palm with spikes extending forward, seem to be relatively rare in the Black Sturgeon area. Usually it is the double-shovel form which shows the ultimate in moose antler development and makes the most treasured trophies. Symmetry is also very important in classifying trophies. Antlers which exhibit similar growth and



One of the largest moose antlers ever recorded in Ontario. It measured 70" green (A. T. Cringan) when shot by Sonny Nelson near Frazer Lake, Thunder Bay Forest District, in the fall of 1953. In March, 1971, Author Timmermann found the maximum spread was 67-1/8"; the beam circumference was 8.25" right and 8.0" left; the points numbered 29-12 right and 17 left; the age was WC VII, 8½-10½ years.



"Double shovel" type of antler from 4½-year-old moose shot near Detour Lake, Black Sturgeon area, October 4, 1969. Maximum spread, 49.3"; 25 points; 7.8" beam circumference.

development on both sides score much higher as trophies than those with uneven development.

Antlers are seldom weighed in Ontario. Racks from freshly killed animals ("green" antlers) are much heavier, and usually measure larger, than those which have had time to dry out. An exceptionally large palmata-type antler from an 8½-year-old bull weighed 65 pounds green. One of the largest antlers ever recorded from Ontario weighed 52 pounds and measured 67.1 inches 17 years after it was shot; this set was measured at 70 inches in 1953. Two sets of antlers exhibiting abnormal points (a 67.5-inch spread from Kapuskasing Forest District and a 67.0-inch spread from Chapleau District) each weighed 44 pounds dry. It seems

conceivable that a few moose may be carrying around antlers weighing as much as 75 pounds.

The typical antlers of a Black Sturgeon yearling moose have two or three points on each side and are of the cervina type. Antlers bearing four or five (and in one case, seven) points on each side were recorded in the sample of 85 yearlings measured and aged. Their greatest spread varied from 14.8 to 32.0 inches with an average of 24.8 inches. In most cases, yearling moose can be recognized by their antlers because of the small beam circumference, small number of points, cervina shape, and narrow spread.

Older moose show considerable variability in antler development. This fact makes judging the animal's age by antler growth an

THREE MOOSE ANTLER MEASUREMENTS RELATED TO AGE

(Based on 339 specimens harvested in October)

Age (CRC)* (Years)	Sample Size	Average Beam Circumference (in)	Average Maximum Spread (in)	Average Number of Points more than 1" long
1½	85	5.1	24.8	5.7
2½	49	6.0	33.5	10.3
3½	52	6.3	38.5	12.4
4½	33	7.0	42.6	16.2
5½	29	7.4	48.4	18.8
6½	14	7.9	49.1	18.5
7½	21	7.7	48.6	18.4
8½	18	8.0	50.5	17.8
9½	10	7.7	51.2	16.2
10½	8	7.7	50.8	19.8
11½	7	8.4	52.1	17.9
12½	5	7.9	47.4	17.4
13½	6	6.9	45.6	16.7
14½	2	7.5	44.3	15.0

*Cementum Ring Count. As cementum is laid down annually on the roots of permanent teeth, the age of a moose can be determined by counting these layers in much the same manner as one ages a tree by counting the rings in the wood.

VARIABILITY IN GREATEST SPREAD OF MOOSE ANTLEERS

(Based on 339 specimens harvested in October)

Age (years)	1½	2½	3½	4½	5½	6½	7½	8½	9½	10½	11½	12½	13½	14½
Minimum	14.8	24.8	30.8	29.0	38.0	40.0	40.5	41.3	33.8	44.8	45.8	42.0	31.5	43.0
Average	24.8	33.5	38.5	42.6	48.4	49.1	48.6	50.5	51.2	50.8	52.1	47.4	45.6	44.3
Maximum	32.0	46.5	49.0	53.3	58.8	53.3	55.3	63.5	57.0	61.3	59.5	55.0	51.5	45.5
Sample Size	85	49	52	33	29	14	21	18	10	8	7	5	6	2

VARIABILITY IN NUMBER OF POINTS

(more than one inch long) ON MOOSE ANTLEERS

(Based on 339 specimens harvested in October)

Age (years)	1½	2½	3½	4½	5½	6½	7½	8½	9½	10½	11½	12½	13½	14½
Minimum	2	5	7	9	10	12	9	14	9	14	12	9	8	12
Average	5.7	10.3	12.4	16.2	18.8	18.5	18.4	17.8	16.2	19.8	17.9	17.4	16.7	15.0
Maximum	14	14	20	21	26	27	26	24	29	28	26	29	23	18
Sample Size	85	49	52	33	29	14	21	18	10	8	7	5	6	2

impossible task. Antlers from 49 moose at the age of 2½ years, for example, ranged from a minimum of 24.8 inches to a

maximum 46.5-inch spread.

The number of points also varies a great deal. Both the 9½-year-old and 12½-year-old



"Cervina" or "pole-horn" type of antler with long tines or spikes from 3½-year-old moose shot near Ripple Lake, Black Sturgeon area, September 28, 1968. Maximum spread, 37.5"; 8 points; 6.5" beam circumference.

age samples included antlers with as few as nine points and as many as 29 points.

BAGGING A TROPHY

What are a hunter's chances of bagging a trophy moose? This depends a lot on the area in which he chooses to hunt and the amount of hunting pressure the area receives. We might attempt to calculate the chance one hunter has in harvesting a trophy moose by using the reasoning below.

A. AREAS ACCESSIBLE BY ROAD OR ADJACENT WATER WAY AND HUNTED ANNUALLY

1. Assume all bull moose aged 5½ years or older are trophy bearers with a minimum of 18 points and 48-inch spread.
2. Assume 25 per cent chance of success.
3. Accessible area age structure shows that ten per cent of harvested moose

are males of trophy-bearing age.

Therefore, the chance of bagging a trophy is 0.25×0.10 which equals 0.025 or one hunter in 40. The chance of bagging an extra fine trophy, aged 8½ to 11½ years, is reduced to one hunter in 200.

B. INACCESSIBLE AREAS REACHED ONLY BY FLY-IN, LONG PORTAGE OR ALL-TERRAIN VEHICLE AND VERY LIGHTLY HUNTED

1. Assume 66.7 per cent chance of success.
2. Inaccessible area age structure shows that 25 per cent of harvested moose are males of trophy bearing age.

Therefore, the chance of bagging a trophy is 0.67×0.25 or one trophy for every six hunters. Extra fine trophies may be in the order of one in 20.

Clearly, if a trophy hunter wishes to



Antler Development of Four Moose Shot in Black Sturgeon-Lake Nipigon Area

<i>Age</i>	<i>Max. Spread</i>	<i>Beam Circumf.</i>	<i>No. Points</i>	<i>Year</i>
$1\frac{1}{2}$	21.0"	4.3"	4	1970
$2\frac{1}{2}$	29.3"	6.3"	11	1968
$3\frac{1}{2}$	42.8"	6.5"	18	1970
$8\frac{1}{2}$ - $10\frac{1}{2}$	67.2"	8.25"	29	1953



Antlers from an old 14½-year-old moose, well past his prime, shot near Whiteclay Lake, Black Sturgeon area, September 28, 1968. Maximum spread, 43.0"; 12 points; 7.0" beam circumference.

increase his chance of success, he should plan on expending extra effort in the less heavily hunted areas.

In summary, the development of moose antlers, in terms of size and rate of growth, varies with each individual moose. Heredity and location are probably the key factors governing the growth of antlers, and endeavouring to age moose beyond the

yearling stage, by the size of the antler, is purely a matter of guesswork.

If you are ever fortunate enough to bag a trophy animal, however, one thing is certain: the record head mounted above your fireplace was from a bull with many years of experience behind him. The antlers are a tribute to both the hunter and a magnificent, big game animal.

REFERENCES

- Boone & Crockett Club 1964. Records of North American Big Game, Carnegie Museum, Pittsburgh, Penn., U.S.A.
- Bubenik, A. B. 1968. The Significance of The Antlers in the Social Life of the Cervidae, Swiss Foundation for Alpine Research, Zurich. 8 pp.
- Cringan, A. T. 1955. About Moose Antlers—article in Northern Sportsman, November, 1955. 4 pp.
- Cringan, A. T. 1955. Studies of Moose Antler Development in Relation to Age. Appendix B, North American Moose by R. L. Peterson, University of Toronto Press.
- Modell, N. 1969. Horns and Antlers, Scientific American, April, 1969. 9 pp.
- Peterson, R. L. Moose and Antlers, Department of Mammalogy, Royal Ontario Museum, Toronto. 1 pp.

RAINY DAY RAINBOWS

fine fall fishing

by D. P. Dodge

Supervisor, Program Co-Ordination Section, Sport Fisheries Branch

It is raining—not a spring shower, not an August downpour, but a steady, monotonous rain—dull, grey and cold.

After two days, the river is rising quickly, scouring leaf-sodden pools, collecting last summer's litter. The water is turning brown, and now, ten times its summer flow, is dumping tons of silt-laden water into Georgian Bay, pluming out for several miles.

We had been out since dawn, chugging along the shore in short choppy waves, kept warm by clothes and inner glows.

We had three lines out, trolling just off the bottom over 20 feet of water. Tom, Dave and I had fished for several years now, meeting at Leith after the first fall rainstorm when frosty nights had dropped leaves and dawn was delayed a little more each day. The best fishing days for us were those of choppy and milky water, when we could just see bottom as we moved slowly along.

Strike! Dave's pole bends in a 'U', the motor idling as he plays his fish. Tom and I have reeled in our lines and are watching the fun—with a landing net handy for the finale.

The fish has been taking line, running straight away along the shore. Dave frantically cranks his reel to hold the tension and, hopefully, gain back his line. Two hundred feet out, the fish jumps, shaking its head, flashing the spinner in the weak light; but Dave is ready, and after its final dart, the fish comes in slowly, tugging and jerking, until we net it into the boat.

It's a rainbow trout, a big fat silvery female—bulging belly, and shimmering

scales. This beauty is one of many gathering off river mouths, cruising up and down through the turbid scourings the rivers are dumping into the bay. Most are beginning their first spawning run, seeking their home stream, sorting out the rivers to find the peculiar smell of their natal stream. Some old-timers of two and three spawning seasons glide by, leviathans of sixteen pounds, battle-scarred males with hooked snouts and amber sides.

Since they left their home stream eighteen months ago, the first spawners have grown from eight inches and eight ounces to twenty-five inches and twelve pounds by gorging on smelt, suckers, alewives, and minnows. Some have returned from sixty miles of wandering around Georgian Bay; others have strayed only a few miles from the river mouth.

The fish are heavy and thick, not only with the generous layers of fat along their gut, but also with the ripening testes and swelling ovaries that now make up nearly 10 per cent of their weight.

The smell of the river water mixing in with the lake has excited the fish, particularly the precocious males, or jacks, which have been running in and out of the lower end of the river mouth since mid-September, inexperienced and excited.

As November ripens, some fish, mostly males, begin their spawning ascent of the streams. The fortunate ones will find suitable pools of deep, quiet water, close to the spawning beds, and wait out the long dark winter until spring warms the water and



A leaping rainbow. Photo by T. Jenkins.

swells the rivers so they can spawn. For most, however, it is an abortive run, for they will be stopped by short falls and tree jams, only passable when water from the snow melts in the spring and sweeps away the jams and covers the falls.

For a very special few, which time their entry on rising water levels in late October and push upstream without pause, there is only one ascent required. Clearing numerous obstacles, they reach quiet, shallow pools and riffles near the spring headwaters. Here, where the water never cools below 40° F, they complete the ripening process. Females build nests, males fight, pairs spawn, and eggs are buried in gravel. By February, when less fortunate fish are just beginning their second attempts, the late fall and early winter spawners are drifting back to Lake Huron.

As we start trolling again, our conversation turns to the merits of rainbow trout and

the superlative sport they provide many anglers each year.

Rainbow trout were introduced into the Great Lakes about a century ago, and because of their great adaptability have increased and persisted despite pollution and sea lamprey. With their habits of running streams in late fall and again during early spring, they have provided many pleasant hours for Ontario and American fishermen.

Most fishermen think of April and May when rainbow trout are discussed; but the true rainbow fisherman, who wants good sport and superb eating combined with solitude, always reminisces over the big one that broke his line last fall.

With an extended season in the Great Lakes that closes on December 31, you have the opportunity to surprise your friends with baked rainbow trout at your first pre-Christmas party.

the white-tailed deer in southern farming areas TROPHY OR NUISANCE?

by G. F. Love

Fisheries Management Officer, North Bay Forest District

An early morning riser, looking drowsily out of a window to check the weather, spies a stately buck standing within a short distance of the house. This is a rather common occurrence throughout Lake Simcoe Forest District from the northern Crown land to the southern, privately owned fields and the gardens around and within the boundaries of Metropolitan Toronto.

The topography within the District varies from the rocky and forested portion of the Laurentian Shield to the rolling farmlands in the central and southern portions. Along with this change in terrain, there is also a north-south difference in the status of the white-tailed deer. In the north, it is a prized big-game animal, eagerly sought by many hunters during the open season, while in the south it is often considered a nuisance animal.

In the northern and more heavily forested areas, the deer feed mainly on the twigs and leaves of forest trees and shrubs, thus causing little concern to landowners. However, in the southern and central farming areas where the forests are less extensive and cultivated crops are abundant, grains, carrots, lettuce, fruit trees, etc. form a large portion of the deer's diet during a great part of the year. Their consumption and trampling of crops create much havoc in extensive market gardens. A common complaint from farmers concerns the amount of crops flattened by deer while trampling about and resting. A market gardener often discovers that a deer has walked through his cabbage patch and nipped a bite out of each cabbage as he came to it, pawed trenches down his carrot rows,

or consumed a quarter of an acre of newly emerged bean plants in one night, and then persistently returned until most of his crops were practically valueless, forcing him to resow.

Orchards, especially those of dwarf fruit trees, provide a tasty dish for deer when the fruit is ripening. However, the main damage to orchards occurs during the winter months when hungry deer strip off the terminal and fruit buds. In one particular orchard of dwarf fruit trees that the author investigated, the deer browsing was so serious that it was difficult to find one remaining terminal bud. When the fruit buds are removed, the loss is permanent because those twigs will never again bear fruit.

It is difficult to assess the financial loss to the farmer since deer seldom ruin an entire crop. The preventative measures, such as high fences and wire collars around tree trunks, employed to discourage other animals, fail to reduce damage by deer. The farmer is further frustrated by being unable to shoot them legally as he would other wild animals.*

Crop loss is not the only type of damage caused by an over-population of deer. Each year in Lake Simcoe District, more than one

**The Game and Fish Act, Section 54, Sub-section 6, reads in part as follows: "A farmer or any of his family residing with him upon his lands may without a licence hunt or trap thereon fur-bearing animals during the open seasons and may hunt thereon birds or animals, other than caribou, deer or moose, during the open seasons. . . ."*



Signs are erected to protect both deer and motorists. Photo by C. Van Gernerden.

hundred automobile accidents are caused directly by deer. These result in property damage totalling many thousands of dollars. Their seriousness varies from those in which little or no damage occurs to collisions in which the damage costs run to a thousand dollars or more. Fortunately, there are no cases yet of human death caused by deer in Lake Simcoe District.

Over two-thirds of the accidents occur in the southern portion of the District, particularly in townships where there has not been an open deer season for many years. The construction of four-lane highways, plus increasing traffic on all roads in the south, increases the probability of deer being struck by vehicles.

Statistics show that in some southern townships, such as Caledon, King, Vaughan and Reach in the three most southern counties of Peel, York and Ontario, there is a higher and steadily increasing population of deer as compared with many northern townships. It is interesting to note that in

neighbouring townships, which have accepted an open deer season, the automobile accident rate due to deer decreased following the open season.

In accidents involving deer, the owner of the vehicle is not compensated for damage except by his comprehensive insurance policy, and he must still pay the deductible amount. Besides this personal expense, there is inconvenience to the driver and passengers as well as an expense to the taxpayer if the accident has to be investigated by law enforcement officers.

Another factor is the waste of venison, caused by the accident itself, or as a result of spoilage in warm weather when the meat cannot be salvaged quickly and donated to institutions such as hospitals or old-age homes. The same game animals could provide much high-quality recreation for hunters if they were harvested during an open season.

One reason why many township councils in the southern part of the District have not agreed to recommend an open deer season is because they associate a big-game season with hordes of hunters, stray bullets from high-powered rifles, and hounds chasing sheep and cattle. They fear damage to their property and danger to themselves and other people in the more highly populated areas. These fears have been unfounded in many townships in the District which have agreed to allow an open season. Invariably, the councils are quite satisfied with the results and recommend the same in following years.

This changed outlook can be attributed to a number of factors. Where the three-day

VEHICLE DEER KILLS IN COUNTIES OF LAKE SIMCOE DISTRICT

Compiled by J. S. Dorland

Year	Dufferin	Ontario	Peel	Simcoe*	York	Total
1966	8	33	11	35	28	115
1967	8	24	23	44	23	122
1968	20	30	15	32	17	114
1969	8	31	16	36	30	121
1970	13	38	22	32	30	135

**Includes Baxter Township in Muskoka District.*



Highway victim. Every year, more than 100 deer are killed by vehicles in Lake Simcoe Forest District.

Successful hunters represent a popular way to control deer populations.



season has been agreed upon by both the township and the Department of Lands and Forests, the majority of hunters checked by Conservation Officers have been local sportsmen from the township, itself, or from neighbouring towns and villages. There has been no large influx of hunters into heavily populated parts of the township since there are few deer in these areas.

To satisfy the demands of landowners, regulations have been passed to prohibit the use of dogs and rifles. Owing to their short range and the fact that they are used throughout the year by small-game hunters, shotguns (loaded with rifled slugs or buckshot) have been approved by local landowners as acceptable weapons.

During the District's three-day seasons, hunting accidents have been limited to one non-fatal misfortune in 1967.

The approval of seasons by a considerable

number of townships in the District has enabled sportsmen to secure a harvest estimated at approximately four hundred deer annually. This figure could be enlarged considerably if other townships (where adequate deer numbers exist) would accept a season.

The white-tailed deer is undoubtedly the most highly prized game animal in Lake Simcoe Forest District but, like any game species, its numbers must be controlled or it will become a nuisance. Far too often, the only person who realizes we have an excessive deer population in this area is the farmer who suffers much crop damage.

A proper management program for the District's deer population would result in reduced crop damage and road accidents and at the same time provide for an increased number of recreational experiences for hunters.

DEER ON ROAD CAUSES MULTIPLE ACCIDENTS AND INJURIES

From Weekly Report, District of Lake Simcoe, November, 1965

There have been many accidents in recent years involving deer kills on roads and highways and resulting property damage. One of the most unusual was reported recently by Conservation Officer George Love who investigated a deer fatality in King Township.

According to the Officer's report, early in the evening, a car, swerving to avoid hitting a deer on the King sideroad between the third and fourth concessions, ran into the bank along the road, causing some \$500.00 damage to the vehicle. Apparently, the animal was not struck at that time. The driver of the vehicle was taken to Newmarket Hospital, by a Constable on the Township Police Force, suffering chest injuries, shock, and possible broken ribs.

As the Constable left the hospital, he was despatched to another accident at the same location. On this occasion, he found that a Chevrolet car had hit a deer, causing \$125.00 damage to the vehicle. As the driver attempted to pull his vehicle off the road, he was overtaken by a 1966 Chrysler car which passed him and also hit the deer as it jumped in front. This vehicle incurred some \$200.00 damage. The driver moved his car onto the shoulder of the road.

A third car, a Mini-minor overtaking the Chrysler, also hit the deer which had gotten to its feet, jumping in front of the approaching vehicle. A fourth car, following the Mini-minor, struck it from the rear, totally demolishing it, according to the Officer, to the value of about \$1,000.00.

Three passengers of the Mini-minor were taken to the hospital at Newmarket. Damage to the vehicles, according to Mr. Love, including \$250.00 incurred by the fourth car involved, would amount to \$2,075.00, and four people required hospital treatment. The deer, a 3½-year-old female, died at the scene.

—Arthur W. Leman, District Forester.



A handsome white-tailed buck.

